

PATENT  
Attorney Docket No. 34003.28  
Customer No.: 000027683

### III. REMARKS/ARGUMENTS

#### A. Status of the Application

Claims 1 – 95 were pending prior to the present amendment. The present status of claims 1 – 95 is as follows: Claims 1-4, 6-19, 21, 42-53, 55 and 57-60 are allowed. Claims 5, 20, 22, 29-31, 36-39, 41, 54 and 56 are rejected. Claims 23-28, 32-35 and 40 are objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form. Claims 61 – 95 are withdrawn.

The present amendment affects the claims as follows: Claims 4, 5, 12, 20, 22, 29, 31, 44, 54 and 56 are amended. Claims 28 and 39 are canceled. Claims 96 – 115 are added.

Accordingly, the claims currently under examination are 1 – 27, 29 – 38, 40 – 60, and 96 – 115. Applicants appreciate and acknowledge the allowance of claims 1-4, 6-19, 21, 42-53, 55 and 57-60. In view of the foregoing amendments and the following remarks, Applicants respectfully request reconsideration and allowance of all claims currently under examination.

#### B. Affirmation of Election

The provisional election without traverse made May 2, 2003 to prosecute the invention of Group I, claims 1 – 60 is hereby affirmed. Claims 61 – 95 are withdrawn.

#### C. Rejection of Claims 5, 20, 29, 31, 54 and 56 under 35 U.S.C. §112, 2<sup>nd</sup> paragraph

Claims 5, 20, 29, 31, 54 and 56 stand rejected under 35 U.S.C. §112, second paragraph. The Office Action states that the claims recite an organic material or dispersing agent that is soluble, but that it is unclear as to what the organic material or the dispersing agent is soluble in.

Claims 5 and 20 have been amended to recite that the soft organic material as claimed therein is soluble in at least one of an organic solvent and an inorganic solvent.

Claims 29, 54 and 56 have been amended to recite that the dispersing reagent as claimed therein is soluble in at least one of an organic solvent and an inorganic solvent.

Claim 31 has been amended to recite that the soluble organic material as claimed therein is soluble in at least one of an organic solvent and an inorganic solvent.

In view of the foregoing, Applicants respectfully request that the rejection of claims 5, 20, 29, 31, 54 and 56 under 35 U.S.C. §112, second paragraph be withdrawn.

PATENT  
Attorney Docket No. 34003.28  
Customer No.: 000027683

D. Rejection of Claims 22, 29-31, 36-39 and 41 under 35 U.S.C. § 102(a)

Claims 22, 29-31, 36-39 and 41 stand rejected under 35 U.S.C. § 102(a) over Stepanek et al ("Stepanek"). Insofar as it may be applied against the present claims, this rejection is respectfully traversed.

As provided in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim...." Therefore, Stepanek must disclose all of the elements of the claims to sustain the rejection of claims 22, 29-31, 36-39 and 41. However, Stepanek does not meet the standard required by MPEP § 2131 because Stepanek does not disclose each and every element of independent claims 22 and 31, or claims 29, 30, 36-39 and 41 which are dependent thereon.

1. Independent Claim 22 and Dependent Claims 29 – 30

Claim 22 as amended is drawn to a system for cutting nanotubes. The system comprises a plurality of nanotubes, at least one of which has a first length; dispersing reagent comprising a soft organic material for dispersing at least a portion of the plurality of nanotubes; and grinding mechanism operable to apply force against the at least one nanotube having a first length to cut the nanotube to produce at least two nanotubes. Each of the two nanotubes has a length shorter than the first length.

Stepanek does not disclose or suggest each and every element of claim 22. In particular, Stepanek does not disclose or suggest a system for cutting nanotubes comprising dispersing reagent that comprises a soft organic material for dispersing at least a portion of the plurality of nanotubes.

As stated in the Office Action, Stepanek discloses a process for cutting carbon nanotubes. According to the process disclosed by Stepanek, the nanotubes are ultrasonically dispersed in ethanol to obtain a homogeneous suspension. (Stepanek at p. 126). The homogeneous suspension is then poured on two diamond lapping film disks, and rubbed until the alcohol evaporation is complete. (Stepanek at p. 126).

Stepanek does not disclose or suggest a process comprising a dispersing reagent that comprises a soft organic material. Dispersion according to Stepanek is accomplished by sonication, rather than by a dispersing reagent comprising a soft organic material. Accordingly, the rejection of claim 22 is improper because Stepanek does not disclose or suggest each and every element of the claim.

PATENT  
Attorney Docket No. 34003.28  
Customer No.: 000027683

As to claims 29 and 30, which depend from claim 22, and also stand rejected over Stepanek, these rejections are also improper for at least the same reason as applied to claim 22.

2. Independent Claim 31 and Dependent Claims 36 – 39 and 41

Claim 31 as amended is drawn to a method for cutting nanotubes. The method comprises exposing at least one nanotube having a first length to a soluble organic material, and using the soluble organic material to grind the nanotube to result in at least one shortened nanotube having a length that is shorter than the first length. The soluble organic material is soluble in at least one of an organic solvent and an inorganic solvent.

Stepanek does not disclose or suggest each and every element of claim 31. In particular, Stepanek does not disclose or suggest a method for cutting nanotubes comprising exposing a nanotube to a soluble organic material, and then using the soluble organic material to grind the nanotube to result in a shortened nanotube. As stated above with respect to claim 22, the grinding of the nanotubes according to the process disclosed in Stepanek is accomplished by two diamond lapping film disks. The process according to Stepanek uses the abrasive diamond particles to cut the nanotubes. (Stepanek at Abstract.) Diamonds are among the hardest materials known to man, and cannot be said to be "soluble". Furthermore, the ethanol present in the process disclosed by Stepanek does not contribute to grinding, i.e., it is not used to grind the nanotube to result in a shortened nanotube.

In contrast, the method for cutting nanotubes as claimed in claim 31 comprises exposing a nanotube to a soluble organic material, and using the soluble organic material to grind the nanotube to result in at least one shortened nanotube. Accordingly, the rejection of claim 31 is improper because Stepanek does not disclose each and every element of the claim.

Claims 36-39 and 41, which depend from claim 31, also stand rejected over Stepanek. Claim 38 is canceled. As to claims 36, 37, 39 and 41, the rejection is improper for at least the same reasons as applied to claim 31. However, Applicants further argue the impropriety of the rejection with respect to claim 36 because Stepanek does not disclose or suggest a soluble organic material that acts as a dispersing reagent capable of dispersing a plurality of solid state nanotubes. As discussed above with respect to claim 22, the nanotubes according to the process of Stepanek are dispersed by sonication.

PATENT  
Attorney Docket No. 34003.28  
Customer No.: 000027683

E. Objection to Claim 23-28, 32-35 and 40

Applicants appreciate the indication in the Office Action that claims 23-28, 32-35 and 40 would be allowable if rewritten in independent form. Claim 28 has been canceled. As for the remaining claims objected to, claims 23 - 27 depend from claim 22, and claims 32 - 35 and 40 depend from claim 31. Applicants respectfully submit that the objection is improper because, as discussed above, the rejection of claims 22 and 31 is improper and should be withdrawn. Therefore, claims 23-27, 32-35 and 40 are in condition for allowance in the present form.

F. Amendments to Claims 4 and 12

Claims 4 and 12 were allowed in the present Office Action. However, Applicants noticed that the word "monosaccharide" was misspelled in claim 4, and the word "said" was omitted from claim 12. The present amendments to claims 4 and 12 address these typographical errors. Applicants respectfully submit that the amendments to claims 4 and 12 do not adversely affect the allowability thereof.

G. New Claims 96 - 115

New claims 96 - 99, 100 - 103, and 112 - 115 are drawn to groups of organic solvents and inorganic solvents in which the soft organic material or dispersing reagent claimed therein is soluble. New claims 96 - 99 each depend directly or indirectly from claim 5, which depends from independent claim 1. New claims 100 - 103 each depend directly or indirectly from claim 20, which depends from independent claim 12. New claims 112 - 115 each depend directly or indirectly from claim 54, which depends from independent claim 50. Claims 1, 12 and 50 are allowed. Thus, Applicants submit that new claims 96 - 99, 100 - 103, and 112 - 115 are allowable.

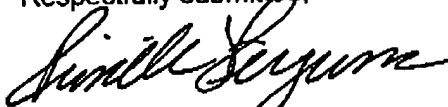
New claims 104 - 107 and 108 - 111 are drawn to a group of organic solvents and inorganic solvents in which the organic material claimed therein is soluble. New claims 104 - 107 each depend directly or indirectly from claim 29, which depends from independent claim 22. New claims 108 - 111 each depend directly or indirectly from independent claim 31. As discussed above with the respect to the rejection of claims 22 and 31 over Stepanek, independent claims 22 and 31 are allowable. Thus, Applicants submit that new claims 104 - 107 and 108 - 111 are also allowable.

PATENT  
Attorney Docket No. 34003.28  
Customer No.: 000027683

#### H. Conclusion

Claims 1 - 27, 29 - 38, 40 - 60, and 96 - 115 are currently under examination in the present application. In view of the foregoing amendments and remarks, reconsideration and allowance of claims 1 - 27, 29 - 38, 40 - 60, and 96 - 115 is respectfully requested. The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,



Priscilla L. Ferguson  
Registration No. 42,531

Dated: August 21 2003  
HAYNES AND BOONE, LLP  
901 Main Street, Ste. 3100  
Dallas, Texas 75202-3789  
Telephone: 214-651-5662  
Facsimile: 214-651-5940  
File: 34003.28

D-1150097\_1.DOC

OFFICIAL

FAX RECEIVED

AUG 22 2003

TC 1700